BOOK REVIEW

D. MICHAEL WARNER AND DON C. HOLLOWAY: *Decision Making and Control for Health Administration.* Ann Arbor, Mich., Health Administration Press, School of Public Health, The University of Michigan, 1978. xxii + 427 pp. $20.00

OPERATIONS analysis is a relatively recent addition to the tools of management. It began to come into its own with the development of a mathematical foundation for decision making in the 1940s. The promise in the application of quantitative techniques has undoubtedly been very exciting for those who believe that the art of management can be replaced by a scientific approach.

While there are those who are convinced that all administrative decisions can be reduced to numbers, this book avoids preaching that philosophy. It does not seek to convert everyone to the quantitative approach. Nor does it impart so much knowledge about the subject as to make the reader a quantitative specialist. Its purpose is to prepare health administrators to manage the work of quantitative specialists, and it appears to be written to accomplish that objective.

While the techniques involved in operations analysis (linear programming, simulation models, etc.) vary in degrees of complexity, the authors have softened their impact by presenting the techniques in applications to areas with which the health administrator can readily identify (admissions scheduling, staffing problems, etc.). These problems are detailed well and the reader is taken step-by-step through the solution. A major drawback of trying to teach administrators to manage quantitative specialists is that a more than passing acquaintance with calculus is required to understand the mathematical techniques.

$$W(X) = \frac{\dfrac{\rho^x}{X!(1-\rho/x)} \cdot \dfrac{1}{\sum_{j=0}^{x-1} \rho^j/j! + \dfrac{\rho^x}{X!(1-\rho/x)}}}{\mu X - \lambda}$$

and

$$L(X) = W(X) \cdot \lambda.$$

For example, the reader with limited knowledge in calculus will have great difficulty in understanding how this equation deals with waiting time in a medical clinic.

Nevertheless, complete understanding of such equations is not necessary for the book to accomplish its objectives. The unfortunate aspect is that the subject can appear so complex that many who would benefit from the book will be intimidated by it and not read it.

For those with the courage to read on past the first equation, the authors take a cautious approach regarding the day-to-day application of quantitative methods. Numerous caveats are given. For example:

1) There may be situations where the increase in accuracy from a more sophisticated analysis is not worth the increased cost of the analysis.

2) Mathematical programming is still primarily in the experimental stage, and most researchers have not yet implemented the results of their research fully.

3) The political elements of a decision cannot be quantified.

4) A good decision does not guarantee a good outcome.

Why, with all these problems, should one bother to learn about operations analysis? It is important for the following reasons:

1) It sets out an approach which forces the user to understand more fully all elements in a decision. The decision maker must think through all the assumptions and variables involved in a problem to set up the solution. It is undoubtedly this discipline and the resulting feeling of certainty that it gives the decision maker that accounts for the firm believers in the utility of operations analysis.

2) It consists of techniques presently used in management research. An understanding of the results of such research, therefore, requires an understanding of quantitative methods.

3) These same techniques will undoubtedly become increasingly important in the work of health-systems agencies at the local level and in the development of health-care policy at the national level. Because of the importance of outside elements to the daily life of health administrators, it is important that health administrators be conversant with the tools used by regulators.

The book is a challenge to read. The application of quantitative methods is limited, and operations analysis will not satisfy those looking for a foolproof way to make decisions. Nevertheless, this book is very important because it educates the reader in techniques which will increasingly be used by others to measure the efficiency and effectiveness of our health-

care delivery programs. It should be read by health administrators who want to keep pace with the growing sophistication in the field. It should be required for students in health-administration programs.

Seat-of-the-pants decision makers, go to the back of the class.

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